

a1 [0067] In the second embodiment, a series of three-chambered main airbags 62 (a bag-within-a-bag-within-a-bag) having an inner chamber 64, a central chamber 66, and an outer chamber 68 along with smaller auxiliary inflatable bags 70 at the top of the main bags 62 is deployed on the diameter restrictor/gauge track 14 by the airbag securement latch device 40. The bags 62, 70 are deployed on the interior of the hull 54. Upon activation, the compressor 4 forces air under pressure into the compression chamber 6. The time valve 36 of the compression chamber 6 opens at designated time intervals which vary according to the size of the vessel 2. Upon opening of the time valve 36, air is sent through primary conduits 58 (pipes and/or hoses) to the inflatable bags 10. The primary conduits 58 branch off into secondary conduits 60 which contain one-way valves. These valves prevent the loss of air in the remainder of the system in the event one bag 62, 70 is ruptured. As shown in Fig. 30, the system having three-chambered bags 62 contains a series of inter-bag valves 72 which separate the chambers 64, 66, 68 from each other. These valves 72 permit the inner chambers 64 to be filled first as ports 74 to these chambers 64 are free. After the inner chamber 64 is pressurized to its maximum capacity, a butterfly valve (not shown) seals the port to the inner chamber 64 to shut off and lock this port so that no air can leave or enter the inner chamber 64 and all additional air from the compressor 4 is directed into the central 66 and outer 68 chambers. The central 66 and outer 68 chambers also contain butterfly valves that seal the ports to these chambers 66, 68 when maximum pressure is attained. These valves are spring loaded and are capable of reopening to allow the entrance of air if the pressure in the chambers 64, 66, 68 drops below the set maximum pressure. However, the entrance ports 76, 78 to the central 66 and outer 68 chambers of the three-chambered bags 62 are

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later pressure-loaded to the maximum pressure setting of the inner chambers 64. After the maximum pressure setting of the inner chamber 64 is attained, a butterfly valve (not shown) seals the port 74 to the inner chamber 64 so that no air can leave or enter the inner chamber 64 and all additional air from the air compressor 4 is directed into the central chamber 66 and then into the main outer chamber 68. The central chamber 66 and the main outer chamber 68 possess reverse butterfly valves (not shown) which close when maximum pressure is attained. These valves may be reopened if the pressure within the controlled chamber 66, 68 drops below the maximum setting. These valves are electrically connected to the compressor 4 controls so that the compressor 4 may be shut down when all of the valves are closed and is opened when one or more of the valves is opened. Inflation of the inflatable bags 62, 64 adds buoyancy to the vessel 2 to keep it afloat. In the event rupture to the hull 54 has penetrated both the inner 50 and outer 52 wall of the hull 54, the pressure of a bag 62, 70 against the inner aspect of the inner wall 50 of the hull will tend to confine the water to the space between the inner 50 and outer 52 walls of the hull 54. In the event the outer chamber 68 of the main bag 62 ruptures, the presence of inflated central 66 and inner 64 chambers and auxiliary bags 70 will maintain pressure against the inner aspect of the inner wall 50 to continue to maintain pressure against the incoming water, and will tend to confine the incoming water to the space between the inner 50 and outer 52 walls of the hull 54.
